

CURSORY REMARKS

O N T H E

METHOD of INVESTIGATING the
PRINCIPLES and PROPERTIES of
BATH and BRISTOL WATERS.

S E T F O R T H I N

ATTEMPTS *to revive antient Medical Doctrines;*

A N D I N

An ATTEMPT to ascertain and extend the
VIRTUES of these WATERS.

Both by ALEX. SUTHERLAND, M. D.

Of BATH and BRISTOL HOT-WELLS.

In a LETTER to

NATHANIEL BARRY, M. D.

Fellow of the King and Queen's College
of Physicians, and one of the Physicians General
to the Army, in IRELAND.

By C. LUCAS, Doctor of Physic,

Of Rheims, Leyden and DUBLIN; and
Member of the Royal College of Physicians
of LONDON.

*Sumite materiam vestris, qui Scribitis aequam
Viribus: et versate diu, quid ferre recusent,
Quid valeant humeri* - - - - -

HORAT. *de Arte Poetic.*

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Cursory Remarks, &c.

In a LETTER to
NATHANIEL BARRY, M. D.

Dear Sir,

 FROM the pure friendship with which you have honored me, and the most generous and humane attention you have ever payed to my health and interests, you will long for some account of me.

Though I have not yet been long enough here, to be able to give you any account of the Effects of the Waters upon myself or any other of your patients, I sit down to fulfil one of my promises, which was to inform you of every thing curious or new, in the physical world, that should fall under my observation during my sojourning in England.

Bath and it's Waters remane in the same situation, I have represented them to you

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before:

before: but the Buildings of the town are greatly increased in number and elegance, and we have a prospect of having the Baths put upon a more rational footing than ever; as the Duke of Kingston is erecting Baths, Sudatories, &c. upon the Plan proposed by me.

The State of Physic, in all it's branches, as set forth in mine Essay,[†] and as we have found it since, is much the same. The Death of Doctor Oliver is a public loss, and as such justly lamented. He was undoubtedly an accomplished gentleman, and a judicious practitioner. You will allow my testimony of some weight; as I knew the man, and an unfortunate misunderstanding with me, pretty well known,* removes all suspicion of partiality. But, I need not tell you my Sentiments of him now he is dead; since you have heard me express them, while he was living.

This loss, however, I hope will be repaired to the public in general, to us who practice at a distance from this, in particular, by some learned and ingenious gentlemen of the faculty still remaning, as well as by others who have lately come to this town.

I have

† Part III. § 54 to 60, 65, 66, to 75, &c:

* Letters of Dr. Lucas and Dr. Oliver.

I have already learned the Characters of some here, both in Physic and Chirurgery, who are Ornaments to their respective Professions, by Erudition and Judgement, and to Mankind, by exemplary Honor and Probity. I should, with you, enjoy unspeakable pleasure in naming these excellent men ; but, for fear of offending ever-modest Worth, I must postpone this satisfaction 'till our next meeting.

From such as these, you can never dread what has generally attended the sending Patients, though by the most eminent Practitioners, to use the sovereign Remedies, prepared by the inimitable Chemistry of Nature, in these famous, though 'till lately, unknown and abused Baths. Such men can never think of founding their fame upon the backbiting and vilifying the preceding Practitioner. Such men will not arrogate to themselves a Superiority to any other Physician, nor look upon a Patient sent by distant Physicians to the Bath, as an Appelle from an inferior to a superior Tribunal. Such men can never form monopolising Associations in the Profession, to the Exclusion of other Practitioners, to the prejudice of the Patients, and the Dishonour of the Sacred Art. Such men will not detain patients, who come properly prepared for a Course

of these Waters, several months, or even weeks, at Bath, upon a tedious, nauseous, and expensive course of Shop Medicines, fruitlessly tried before in other forms, giving them no more of the Waters than is barely enough to make the patients believe their Stay at Bath necessary; nor will they render a Course of the Waters ineffectual, by the admixture of incongruous and unseasonable medicines. Such men can never employ *Riders*, as the Traders in this kingdom do, to puff off and put off their Wares; nor bribe any prating gossips to sound their praises, or obtrude them upon patients, to whom they were never intended to be called. Such men will have none occasion to publish or hand about *Quack-bills*, under the gilded titule of Physical Tracts upon the waters; extolling the *Catholicon* beyond all things on Earth, except the Author; who must surely be a great man, when he has discovered Impregnations which no man else ever did or ever can find, and made out qualities and properties which the Author of Nature never gave.

As such scandalous practices, as these good men could never stoop to, have been with unquestionable grounds, formerly, charged upon too many of the Practicioners at
Bath,

Bath, Bristol, and other water-drinking places, in this, as well as other Countries, I am sure you must be impatient to know the names of the few, who thus soar above the grovelling Herd; disdaining every kind of sordid craft and mercenary trade, that can disgrace or disguise the Healing Art. I am sorry I cannot publicly and speedily satisfy the generous solicitude, which an heart of such boundless benevolence as yours must feel, to get acquainted with congenial souls.

I am sorry to tell you, that I can not at present gratify you or myself, in this respect; and I am the more concerned, because I find myself under the disagreeable necessity of taking up the other side of the question. I was in hopes I had done with further writing on the subject of Bath Waters; but, I believe, when you hear what I have to say, you will judge that a just regard to Truth, and Self-Justification, requires my taking up the pen again.

Before Simony was deemed no more than a *Venial Sin*, by the Reverend and Holy Fathers of the Church, a little parson in Ireland published a book on that then hateful Sin, humorously dividing it into different kinds and classes, of which Smock-Simony

Simony made one. With this and other species of this Crime, he was hardy enough to charge his Archbishop, who took no further notice of it, than to say, "Hang the silly Puppy! I should have thought nothing of it, if he had put the charge against me a few pages back, for then it might never be read. But setting it down in the first pages is actually unpardonable, as somebody may have curiosity enough, on seeing my name, to read it."

I am, you will say, neither an Archbishop, nor an *Archiater*; nor my Antagonist of the number of the *Medici Minores*; he is a gentleman of the first rank and fame here. A man of parts and letters, who has written a larger volume than any of his Contemporaries, which at Bath is the sure test of his being the greatest man.

Does not my candid Friend think me an hardy fellow to take up the Gauntlet thrown by so potent a Champion? Of this you will be further convinced, when you find the learned gentleman, from pure patriot principles, contends for Sulphur in Bath Waters; well knowing, that since *Solomon* the son of *David* sat upon the throne of Britain, there never was a time, in which there was so great a necessity of
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having England plentifully stored with Brimstone, as those happy days, in which our Author flourishes.

You see then, mine Undertaking is in every sense perilous, as well as hardy. So that I must confess, between you and me, that had the Controversy against me been brought into the last pages of the massive work, I might have waved my solicitude for truth a while, in expectation that the works of my learned Antagonist might have the fate of the labors of other great men, in having the last sheets seldom sullied or even opened.

It is with no small pleasure I reflect, that you, with all the other learned and worthy gentlemen of the profession, to whom I had the honor of being known, in Dublin, as well as in London, judged that by mine ESSAY on Waters, I had obviated all Cavils, but what might arise upon proving mine Experiments false or erroneous.

You have done me the Justice to observe, that I ascertained the Definitions of all the subjects I treat, and that I layed down the Principles of bodies, preparatory to the work, and so deduced the subjects to be examined from their first principles or original, component elementary particules.

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And you know that I have premised a general Idea of Salts, exemplifying their Origines, Affinities, Attractions, Natures and Properties, in order to demonstrate how they became the Instruments of Nature and Art in the compounding of Waters, and the chief means of Art in exploring such compositions.

Thus have I endeavoured to follow the advice of the great VERULAM in my researches, proceeding *a notis ad ignota*, by which means alone we can hope to find a clue to the labyrinths of Nature.

How unavailing this method has proved to prevent the cavilling of captious men, you have already seen in Dublin, where a man utterly ignorant of the rules of Chemistry, incapable of conceiving a notion of the principles or primary particules of bodies, misconceives, misconstrues, misrepresents, and often perverts every sentence he quarrels with in my book.

I retain, however, so good an opinion of this opponent, that had he attended the courses of Experiments which I publicly repeated at Bath, inviting all the gentlemen of the faculty, in hopes of being able to correct received and established errors, or to receive conviction of such mistakes

takes as I might myself have committed, I dare say he and I should not have differed at this day.

The returns I met from such a candid communication, at Aix, Spa, and Bath, you see in the Essay on Waters, Part III. § 146, &c.

But, you may recollect, that when I set forth the general difference of sentiments of Writers and Practitioners of these Waters, § 279, I mentioned with some exultation the great men, who were avowedly agreed with me in their judgement of these Waters.

Among these, you will find, Doctor SUTHERLAND not the last. This gentleman, indeed, had more just cause to be of my opinion, than most of the others ; for, he was one of the few physicians among the then number at Bath, who attended me closely through several repeted courses of Experiments, each of which obtained the Doctor's approbation, in the elegant terms peculiar to that polite gentleman.

Before my first arrival at Bath, Doctor SUTHERLAND honored the rest of the gentlemen of the faculty, then resident in this city, with being of their opinion. As this learned gentleman is too much a philosopher, to pin his faith upon any man's sleeve, even at Bath, where the Faculty arrogate to them-

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selves more infallibility than the gentlemen of the profession do any where else, his conviction then, must have arisen from his own judgement. This gentleman, so remarkable for his extensive and accurate judgement in the chemic art, must have made all the proper and necessary experiments, for his own information, before I had the honor of his acquaintance. And it must have been from such experiments onely, that the independent, philosophic mind of Doctor SUTHERLAND could draw the conviction, which induced him to join with his learned brethren.

What fuel must the Conversion of so great a man add to the flame of my Vanity ! The learned gentleman's giving up his opinion for mine, was a matter of just exultation ; but the giving up his *favorite Brimstone*, was more than I had a right to expect, and, it now seems, more than he could afford to part with : It is his *Catholicon* ; that, on which he founds his Practice ; and without which, he in effect confesses, he can not practice, at Bath.

The great mind is always the most open to information and to conviction. Doctor SUTHERLAND, for many years, generously acknowledged the conviction he received from mine Experiments, proving Bath Waters, happily for the Public, at least for the people of England
 and

and Ireland, intirely void of Brimstone. The learned Doctor has again changed his sentiments; from what information I cannot say: I suppose from some interior, intuitive evidence; not from the confutation of any one principle I layed down, or of any experiment I made: these, with every intelligent reader, still stand in all the force and weight the Doctor was ever pleased to allow them. In words, indeed, but in words alone he attempts a confutation; and declaring a new conviction, has again returned to the *Deity* of the *Craftsmen*, the *Diana* of the *Ephesians*, his former favorite, *Brimstone*, and now his *Opobalsamum*; ATTEMPTS, p. 210; to which he is pleased to add *Borax* and *Arsenic*, and as you will find, with equal force of truth and reason.

I suppose, my good Friend will hardly judge a work of this kind worthy of serious animadversion: It will not admit of, nor indeed does it deserve it. To minds like yours, I need but set down the groundless cavillings of this writer, to expose them sufficiently: but we must pay some deference to the great Vulgar; some of these are possessed of this massive volume, however they came by it; with them, words, the last words especially, carry conviction, and it is fit to undeceive them.

But there is one circumstance, in which, I am at a loss to know how to treat this learned Author. What is to be said to a man, who, without any foundation, presumes to point out designs in the Author he opposes, foreign to the heart of that Author, or of any honest man? and makes him speak falsehood and nonsense, such as could never enter the head of any man, a degree removed from a Knave or an Idiot? How is a writer to be treated, who takes and carps at inconnected fragments of paragraphs and sentences? or who partially or falsely represents all that he pretends to quote as the complete words of the Author? Your humane heart will be at a loss to suggest the fit treatment for such conduct: I shall therefore only expose it, and let it move no passion, but contempt.

My honored Friend may remember, that in a conversation with you, some time in the last winter, I mentioned having received a volume of a Bath Physician, which I had then time only to dip into, but meeting with nothing new, or worth attention, threw it by, not finding it raised your Curiosity to see it, or mine to take it up again.

Here, the weighty work might have rested in peace, for me, had not you, and my friends of the faculty, judged a course of the Waters

of

of Bath necessary for me. Soon after my arrival here, I found the elaborate Treatise in many hands, and was told by some ingenious gentlemen of the Profession, that the Author had made a little more free with me and mine *ESSAY* on Waters, than was quite just or decent.

Upon seeing the passages relating to me, I borrowed the book ; and having read them coolly, found the gentleman had treated me in a very extraordinary manner, and mine *Essay* somewhat worse, if possible. Time onely can shew, whether this was through Ignorance or design.

Some things struck me so palpably erroneous, that I looked among the Errata for Corrections. To my surprise, I found them not there. But, before I could suspect any man of Letters capable of such abuse and perversion of words and sense, I got a smaller volume, published, as I was told, to correct the larger, under the title of a *Second Edition*. But there I found myself no less disappointed ; for this proved but little more than a literal transcript of the other, with some inconsiderable Defalcations, and in a much smaller type and volume.

The Title of the first book runs thus ;
 “ ATTEMPTS to revive Antient Medical Doctrines. i. Of Waters in general : ii. Of Bath
 and

and Bristol Waters in particular. iii. of Sea-Voyages. iv. of Local Remedies. v. of the Non-Naturals. With an Appendix. vi. of Plaistering in the Small Pox. The whole confirmed by Histories or Facts. By ALEX. SUTHERLAND, M. D. of Bath and Bristol Hot-Wells. London, printed for A. Millar, 1763. With a very curious Dedication to a very Great man, setting forth *Imperial* or *Royal Saints*; dead and living, *glorious Ministers*; *national Oeconomy*, and some other curious particulars.

The Titule of the smaller volume made me believe it at first a second edition of a quite new and different work, as the titules of both had hardly any thing in common, but the name of the Author. This book has for it's Titule, "AN ATTEMPT to ascertain and extend the Virtues of Bath and Bristol Waters, by Experiments and Cases. By ALEX. SUTHERLAND, M. D. of Bath and Bristol Hot-wells. The SECOND EDITION, new modelled, improved, and corrected. London, printed for W. Frederick, and S. Leake, booksellers in Bath, &c. 1764.

The first is divided into volumes, parts and chapters; in the second, the order and division are changed, and parts and whole chapters omitted, particularly, the curious method of treating the Small-Pox, by *Plaistering*. Upon

Upon a cursory comparison of these books, in volumes of such different sizes as octavo's and duodecimo's, and of titles so foregne to each other, I have discovered, as yet, no essential variation, except those omissions in the text, and consider the latter as a small pocket copy of the former, leaving out a very curious part of the first book, the history, description and directions relative to Bath, and the history of Mr. NASH.

The first variation of note, that strikes the eye, is this;—instead of a remarkable dedication, and a separate introduction, prefixed to the first, the great book, in the second, we have this dedication and introduction, which may also serve for a preface, hashed up and consolidated into one, and addressed to the same Patron with the first. Happily, this is somewhat contracted: but, all that I can gather from it, new or different from the first, is that his Patron has an *Exemplary Son*; a phrase which I hope the Doctor will explaine in his next edition, and at the same time authenticate the Munificence, Faith Inviolate, and Gentle Rule, of former Irish Viceroys, as he may the Disinterestedness, Humanity and Affability of the present. And when the Author reconsiders this part of his subject, I hope he will let us know what and whom he means in an
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adjoining phrase ; *adding to the Emoluments of Office, princely Revenues, and reflecting honor upon the Prince they so worthily represented.* I hope our Author does not mean to insinuate that any Lord Lieutenant of happy Ireland, has ever known any *emoluments* of Office, but the *Sallary*. This, indeed, has been lately made a *princely Revenue*.

I mean not to sit down to confute all the errors of this learned Author ; that would require a volume or two as large as his. It is happily unnecessary. I shall onely remark in general, that there is not a single rational or well-stated experiment, Fact, or Observation, layed down, that can be truly called his : the massive book is made up of motley quotations of whole pages, for no better purpose than to swell the volume. Sometimes he is so kind as to translate, to prove his understanding the Quotations ; of which I shall give one specimen for all. Book I. Ch. vii. poor old GALEN is hauled in to say, *Omnis Terra vim possidet desiccandi* : of this our Author gives a translation, which must be confessed his own, to wit, *Every Bath has a drying quality*.

You will find, Sir, that this great Author serves all my ESSAY as he has done my Description and Plan of the antient Roman Baths discovered here. He takes both for his foundation,

dation, and makes such additional superstructures, as his inventive imagination can suggest, without offering one single proof or reason. And, although it be certain, that this gentleman has not one rational experiment or observation, with respect to the Analysis of Bath and Bristol Waters, that he has not manifestly purloined from me; yet does he most unaccountably maim and mangle them, to serve his own purposes, without being able, of himself, to account for a single process, experiment or observation.

Notwithstanding, he holdly promises, from Doctor Lucas's own Experiments, to prove, that Bath Waters are impregnated with Sulphur; and in the conclusion, of his experiments, triumphs in saying, " From Doctor Lucas's own Experiments, we have proven, that they were much better calculated to prove the Existence of Sulphur, than the Non-existence." ATTEMPTS vol. i. part ii. p. 178, &c.

Now, see how this learned and polite Author's promise is verified! You must greatly admire the Doctor's extensive and well-chosen readings, when he tells you, ATTEMPTS vol. i. part ii. p. 143, and An ATTEMPT, p. 8, 9, that " Naturalists in general maintain, that the Spirit of Waters consists of *Iron or Oker*,

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minutely subtilised," that is, as he afterwards explains it, from some of his unnamed, probably nameless, Authors, "*Iron*, divided into minute particles, and suspended by the means of a certain *Acid*, the proper menstruum of Metals." To this opinion he forces HOFFMAN to subscribe, though the words he quotes bear no such meaning.

By what manner of spirit this gentleman is actuated, I shall not attempt to explain. For the spirit of Mineral Waters, explained in the ESSAY, part i. § 171, to 174, part ii. § 29, 31 to 33, 39 to 45, he is content to take very gross and material substances, even a metal dissolved in an acid, which has by some been foolishly called *volatile Vitriol*, a notion justly by me exploded in the ESSAY on Waters, p. ii. § 10, and note, &c.

After this, our illustrious Author borrows and mangles some of my experiments and observations on Bath and Bristol Waters, intermingling, now and then, those of others, p. 149, 150, the better to color the plagiarism.

By those, however, he is forced to confess the constituent parts of both Waters to be the same with what my experiments prove, all to the acquitting both of the imputation of being sulphureous; as he well knows, these are unfit times to lessen the public stock of Brimstone, real or imaginary, in England. In

In other places, p. 154, 155, he joins with other nameless authors, who, as he says, "maintain that the spirit of Waters consists of *irony* particles dissolved without the interposition of an acid." He sums up the whole with approving these incongruous and ridiculous notions, and expresses his opinion, "that Bath and Bristol Waters contain a *Spirit*, that this spirit consists of *Iron*, subtilised and suspended by the means of an *Acid*, and this acid is none other than that *Universal Vitrolico-Sulphureous Principle*, which pervades the bowels of the earth, and which constitutes the life, soul and spirit of medicated Waters." Sure all this must be *Irony*, or *Ironical*! However, upon looking a little further into this great Tract, you will find how this *solid, ponderous, iron* or *irony Spirit* or *Soul* is manifested in the Bristol waters; a notion which he is forced to join with others in exploding, while he positively asserts these Waters to be sulphureous or phlogistic. Reconcile these, if you can.

A little further, p. 159, you will find our learned Doctor's massive, corporeal, solid *Soul* and *Spirit* of Waters, *Iron* or *Oker*, is found in a substantial form, deposited upon the walls and conduits of the Baths, as he himself informs us, p. 160. You will, with me, declare this idea of Spirit new and curious, and

confess it's Author, Doctor SUTHERLAND, of Bath and Bristol Hot Wells.

After this, p. 160, 161, 162, he gives several experiments from Doctor CHARLETON's tracts and mine, and then draws this conclusion; "From the corroborating proofs of both these Inquirers, we may reasonably conclude, that Bath Water is impregnated with *Iron*," that is, the *subtilised irony* particles. Thus have we seen the learned Author's Spirit of Mineral Waters happily, as clearly fixed into *irony* particules, or pure *substantial Iron*. O! wonderful Alchemist! who art able to condense, consolidate, and fix the most subtil and volatil Spirits, and even the volatil word, *Irony*, into ponderous and solid metal!

This done, our Author proceeds to recite more experiments of his *Two Inquirers*, without drawing a single rational inference from any experiment recited; p. 162, 163, 164, except some mention, which he often makes elsewhere, of an *Alcaline Earth*, an expression, which Doctors CHARLETON and SUTHERLAND, of all the modern Philosophical Chemists, find it necessary to use and retain.

He alternately cites two very opposite Writers, Doctors CHARLETON and *Lucas*, transcribing whole pages, sometimes from the one, sometimes from the other, without any Comment,

ment, without any attempt to reconcile our discords, and without declaring to whose sentiments he subscribes. And at length, p. 167, treats the world with his own sentiments, enlightened and improved by the curious and ingenious Chemist and Metallurgist, Doctor *Linden*.

Our Author, in his Experiments, flatly contradicts me, and indeed every other writer on the subject: He positively says, p. 168, that "Bath Water in evaporation suffers no change of color; shews no pellicule on the surface; yields no earth or earthy parts perceptible to the naked eye; but that fair, clear Salts crystalise in the upper part and at the bottom of the retort"; but salts indeed, that were like no Salts I ever saw, *rather inspid*.

Now, Sir, every author and every rational, attentive observer of Bath Waters, yea the very experiments and observations of others, which this ingenious gentleman has honored with adopting, all concur to shew the frailty of human nature, when so great a man as Doctor SUTHERLAND could fall into the most palpable, the most dangerous mistakes: No writer or sensible observer on this subject, can deny, what others as well as I have by many simple experiments proved, that Bath Water contains an Acid, by means of which it is impregnated
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with an earth, soluble onely in Acids. Our Author himself has every where adopted this notion, even where he ingeniously says, *the Irony Spirit of the Water is deposited on the Walls, and in the Conduits, in form of Oker.*

These then being allowed, it must necessarily follow, that the changes which I assert, ESSAY on Bath Waters, § 238, &c. must appear; the Water upon the diminution of the acid solvent, by Evaporation or being exposed in open vessels to the Air, must grow turbid, as we daily see it in the Baths; where, as our ingenious Author observes, *they depofite their Irony Soul and Spirit*; Pellicules of Selenite must be formed on the surface, and crystals of Selenite, the Doctor's *insipid Salt*, must adhere to the sides of the vessel. And from the impregnation the Doctor himself confesses, such changes must necessarily appear; for which I appele to you and every other proper judge.

But this accurate Analyser exceeds his usual Accuracy, when he comes to inform us, that from his process of Destillation, or rather Evaporation, there were no earthy parts perceptible, except a few, *yellow specks*. But these, though so like the subtil favorite he sought, his *Catholic Brimstone*, he passed by, without further notice, to give us an account of the other products of his process.

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In this, indeed, his discoveries and observations are quite new and worthy their Author: He evaporated the Water in such an extraordinary manner, that the *condensed Vapor*, instead of resembling pure *destilled Water*, as every other writer as well as I, found it, *being condensed and caught as it dropped from the beak of the retort, had the appearance of a bittern of common Salt*, that is, a liquor you know, which remanes after the crySTALLISATION of all the sea salt in sea water or salt springs, and is of a thick oleagenous consistency, and remarkably heavy. And what is still more wonderful, this wonderful destilled liquor, in a *Florence flask*, placed in sand, suffers no change in transparency: And, though the liquor continued transparent, there precipitated a *calcarious earth*, like *Magnesia Alba*. —These are Phaenomena so singular, so new, so surprising, that I suppose neither you nor any of the College, no more than I, will attempt to give any solution of them. I own, they are beyond my conception. I shall therefore impatiently wait for the explanation, in another edition of the Doctor's two books.

Well, our Author procedes happily, greatly singular, and in experiment iii. p. 169, examines his curious *insipid Salts*, by the microscope, and tells the forms of the crystals he observed; not without laying down an axiom, different

different from all the writers that have gone before him, that *on the different forms into which Crystals*, that is, I suppose, the Crystals of Salts, *shoot, little stress is to be laid*. I dare say, you have generally thought otherwise, and so have I; as you see in my general idea of Salts; where, I have shewn, that the Crystals of Salts preserve their specific forms after repeated solutions; yea, are separated and distinguished from each other, by Crystallisation, in which each preserves it's proper, distinguishing form.

I fear, I shall tire you with recitals of the wonderful discoveries of our Author, *all Phaenomena!* But I must beg your patience a little longer. One discovery, I had overlooked in the preceding experiment; which is, *the purging quality of the Bath Waters, owing to their Alcaline Earth*: For the explaining these unknown qualities, we are certainly indebted to the Doctor alone; as we are for the singular method of proving the *calcareous earth* in the waters, to be none other than *Bath-quarry Stone, dissolved by the vitriolic Acid*.

This happy discovery the Doctor elucidates and proves by a most curious experiment. "Let" says the accurate Analyser, "this Bath-quarry stone be dissolved in Spirit of Vitriol, then mixed with water, and upon pouring off the water after settling, you have the *calcareous*

rious Earth. But to make it appear the very quarry-stone, *it must be precipitated with water distilled from lime and soap lees*, according to the ingenious inventor. *Risum teneatis Amici!*

But to return to his third experiment. Here are more new discoveries! Moderate your surprise. Our Author here confidently asserts,—take it in his own words:—“ This we know, that no two salts of the same denomination will, upon trial, answer the same proofs in every respect.”—You and the college will wonder at this position. But, suspend your admiration, ’till you hear our Author’s proof of what you hardly believed before. Soon after this position, he gives you the proofs. In these, you will find the most extraordinary and happy discovery; to wit, that the Doctor’s *insipid* Salt of Bath Waters, and *Borax*, are *the two salts of the same denomination*, and yet that, *they answer, upon trial, the same proofs*, in some respects: For, he observes, that this *insipid* Salt, analogous as it is to *Borax*, like this, crystallises in B. A. in *opposition to the common nature of simple Salts*. “ Hence” says he, “ we infer, that out of *Bath-water Salt*, a perfect *Borax* may be manufactured.” Here, Sir, is a strong, a brave, a bold inference, which must silence all gain-sayers, if any there should be. I am sure, I

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shall not be one. But as I am willing to give our new Borax Manufacturer, an useful hint, I beg leave to put him in mind, that the sea coast, or the salt Springs of Worcestershire, would be a better place than Bath for establishing his Borax Manufactory ; for marine Salt or Sal Gem answer his *corresponding proofs* better than his insipid salts of Bath water, for those, as well as these, crySTALLISE, not onely in B. A. but on the naked fire.—He concludes with observing, that the Lixivium, out of which he had extracted the salts, became of the very consistence and taste of brine, such as the evaporated or destilled water was before sayed to yield. Reconcile these, if you can.

Now has our Author an happy method of extinguishing that red hot *Irony spirit* of envy of such shining and distinguished characters as his, too prevalent among the faculty at Bath.—There is no body more likely than he, to obtain a *patent* for the *sole making and vending of Sulphur and Borax*, made of British materials. He may set up magnificent elaboratories for both, at Bath, Bristol, Droitwyck, Nantwyck, on the sea coasts, &c. The consumption for both are so considerable, that he must soon make a fortune, which will set him up an object of envy in an higher sphere, at
which

which his now envious brethren would, no doubt, greatly rejoice. But to return.

Having in the preceding experiments established his *Manufactory of Borax*, in the next, he comes to establish that of the now most necessary commodity, *Brimstone*.

He sets out, experiment iii. p. 170, with a very curious axiom, "In waters, hot and cold, sulphur seems to dwell, though it is often difficult, sometimes impossible, to exhibit it corporeally."—Thus our Author admirably paves the way for embracing, if he does not already hold, the doctrine of Transubstantiation. He shews, he has a saving faith: *Crede quod habes, & habes*.

In the following page, he quarrels with HOFFMAN, who, he says, "seems to have been mistaken, when he rashly pronounces his opinion, that there are very few springs, which contain sulphur in any shape." Yet neither our Author, nor any of his predecessors, have yet been able to shew a water impregnated with sulphur in the manner he or they imagine. And now he proceeds to prove me, what raises my pride, in his judgement, with the great HOFFMAN, mistaken.

To shew this, he proceeds, p. 172, setting forth *my coming to Bath; my being disappointed in certain leading experiments*, which

through native modesty, he declines reciting, but which, I beg leave to remind you of, in the *ESSAY* on Bath Waters, § 118 to 133, and so on to 150, and then, § 188, 21, § 208, 35, § 211, 213, 218, to 226; § 241, 242, 252, 253, to 257, inclusive. Now, our ingenious Author says, p. 178, that these my *Experiments* were better calculated to prove the *Existence*, than the *Non-existence* of Sulphur in Bath waters. I appele to you, and all the other competent judges, whether any thing was here omitted, to investigate these important truths, or whether, or not, our Author has any where lessened the credit of these experiments, or invalidated any inference, deduction, or argument, from them drawn.

However, without confuting or refuting one of these, our most ingenious Author founds hopes of *convincing the candid and impartial*, that Bath waters are really and truly sulphureous.

A country 'squire, once upon a time, chanced to meet OUR IMMORTAL SWIFT, in some of his peregrinations in this kingdom. *I suppose*, says 'squire Clumfy, *you are the famous Swift, whose works I have read. You soon convince me*, says the Dean, *you read but the worst part of my works.* — You will readily conceive, had poor Clumfy read the best parts of the Dean's works, or the whole, effectually,

ally, he must have been likely to have acquired some tincture of knowledge and urbanity.

Let me, my friend, put small men for a moment, in competition with the great. Let me, with great deference to the learned and polite Doctor SUTHERLAND, observe, that, had he properly read, and understood my ESSAY on Waters, he must have picked up some little improvement from it, which would have prevented his taking up points for arguments, which I had before exploded.

I have by various, repeted experiments, proved Bath waters impregnated with an Acid, which generally predominates, while the waters are in the natural state; ESSAY, § 179, to 257. So far from denying or disputing these, the Doctor confirms, by adopting, them.—If, then, our learned Doctor, with me, confesses, that an acid impregnates, and predominates in, the water, if he acknowledges, what the apprentices of sensible apothecaries can inform him, that Brimstone and acids can not subsist together, in an aqueous solution; if he recollects that I have conceded to him, and the rest of the dealers in Fire and Brimstone at Bath, that the walls and pavements of the Baths, that the sand-like pyrite at bottom, and the vegetable scum floating upon the
surface,

surface, were actual sulphur; his attempts to prove the mud, or the sand of the Bath sulphureous, or actual Sulphur, can not answer his purpose, 'till he can prove, what no body else can, that sulphur is soluble in a simple aqueous fluid, or which is still farther from possibility, in water charged, as he confesses Bath water, with an Acid, and that of the Vitriolic kind.

Thus fruitless and nugatory appear our ingenious Author's ingenious ATTEMPTS to prove the mud and sand of the Baths sulphureous, p. 172, and again p. 176, 177, 178, Exper. 1, 2, 3, &c. Since, if we suppose them, not onely sulphureous, but actual sulphur, they can answer none of his purposes, 'till he proves the reverse of what he every where confesses, that the waters are alkaline, instead of acid; by which alone they can become fit solvents for sulphur.

But the learned Doctor plumes himself with hopes of proving by sublimation, which he calls *the ordeal trial of the waters, that Bath water changes it's color, and answers all the characteristics of real Brimstone*, p. 176. Here, you will say, there is no necessity of erecting the Brimstone Manufacture, since this matchless chemist can demonstrate, *that the waters alone answer all the characteristics of real sulphur.*

sulphur. But, this secret he chooses to reserve, I suppose, 'till the patent for the sole making and vending his manufactured brimstone can be made out; for he does not say another word to the purpose. And only tells us, in his recited experiments, that the *Mud* and the *Résiduum* after evaporation, of the waters, *mixed with white arsenic and sublimated*, in English sublimed, *yielded orange-colored, reddish, or yellow sublimate*, of the nature of *Auripigmentum*.

The truth of these experiments, I do not call in question. But I shall beg leave to shew, that they can answer none of the learned Author's purposes, and lest of all those, for which, it seems, he has introduced them, the rendering the water *solid, hard, friable*, &c. &c. &c. that is, *demonstrating that it answers all the characteristics of real brimstone*. As also, that his inferences and conclusions want proof, remane *gratis dicta*, if not fallacious and absurd.

Let it be confessed, with our Author, *that Arsenic will always attract Sulphur, be the quantity ever so small or entangled*. Let it also, on the other hand, be confessed, that Arsenic renders almost all metals and metallics volatil and fugitive; whence the pains and care of metallurgists to free metallic ores from Arsenic, before they commit them to the
smelt-

smelting furnace. Hence, when the filings or calx of most metals and metallics, are mixed with arsenic, and committed in fit vessels to the fire, this mineral will raise with it, in the form of sublimate or flowers, a considerable part of the body so mixed and sublimed with it. Our Author's *Bath-water mud, or rather præcipitate*, as he calls it, and his residuum, contain more or less martial, or as our Author chooses to call it, *irony* earth, or oker, our Author's *life, soul, and spirit* of the waters; from which, with perhaps some phlogistic matter in the mud, the sublimed arsenic derives the color, which our Author ascribes to brimstone, and thence calls his *sublimate*, a kind of *Auripigmentum*, without offering a single circumstance of proof.

But here, our Author established another ingredient in the composition of Bath water: For, p. 177, he assents with Authors, whom he is pleased to quote, perhaps somewhat injuriously, to prove that, *as there are no metalline or mineral ores without arsenic*, there consequently cannot be any mineral waters void of that deleterious mineral. His argument, if I understand him right, is this; *Waters in which arsenic abounds without sulphur, purge and vomit. Bath waters are heated and impregnated by the mineral called Mundic or Pyrite, which must*
be

be arsenical. But, Bath waters, though they contain Arsenic, do not in general purge or vomit; therefore we may conclude, that these waters contain Sulphur, at least, enough to subdue the poisonous quality of the Arsenic, without defeating its salutary purposes. Thus our Author is the first who makes Arsenic an ingredient in these salutary waters, and proves it's existence much as he does that of Sulphur. I suppose we shall soon have an *Arsenic Manufacture* set up here, with those of *Brimstone* and *Borax*.

This learned and ingenious Chemist's account of *Buxton* waters is equally curious and just with this. These, says he, contain no Sulphur, or other mineral, and derive their warmth from a Steam, which arises from Marl, or Rotten Lime-stone. But, adds he, there are no waters which contain salts destitute of sulphur; for salts can not be generated without sulphur. Are not these curious discoveries, and perfectly worthy of their discoverer? I suppose you, with me, wish to see *steaming hot Marl* and *rotten Lime-stone*! And sure you will not presume to think there can be any sort of *saline water* that is not *sulphureous*, since *brimstone* is declared a component part of every salt. After this, will you venture to prescribe *Epsom*, *Scarborough*, *Selterz*, or other such like waters, ne-

ver before suspected of brimstone, where you do not recommend Sulphur, since Salts and Sulphur are inseparable?

Shall I entertain you with any more of the curious lucubrations of our curious Author? I fear, I shall tire you. Yet I have not quite done.

He gives a very pretty reason, of a piece with the rest, why artificial solutions of sulphur are not to be compared with *his natural* solution, Bath waters. The latter, he says, is performed by the means of a *mineral ferment*, such as is caused by a *bituminous substance*. O! wonderful *Marl!* wonderful rotten *Lime-stone!* wonderful *Bitumens!* wonderful *ferment!*—known onely to our inimitable, most wonderful Author!

But his describing the effects of mixing these his sulphureous solutions, has a clearness and elegance peculiar to our author. Such a mixture, he says, *becomes milky, the inflammable principle is set at liberty by the Acid*, (though he judges it was held fast by it before in the Bath water) *now flies off, and*, as he terms it, *regales the nostrils with a rotten sulphureous smell*. And *this*, he asserts, *is a proof of Bath water's being impregnated with Sulphur*.

With how much more justice, do I make this experiment for a purpose, the diametrical
reverse

reverse of our author's, ESSAY § 188, I submit to your judgement. Though perhaps, in general, I may not be able to make you differ from so great a man as our Author, I think you will hardly agree with him in his notions of odors, *which regale the nostrils*. The lesser stench must be less offensive to nostrils accustomed to the greater. And men inured to filth and stench can not bear fragrant odors, but are overcome by them; while their *nostrils are regaled* with their native smells. Thus a man fainting, overcome by the sweet and fragrant air of a fine garden, was not recovered, till carried by some of his acquaintance to the next jakes, where *his nostrils being regaled*, by inspiring the odorous fumes, his spirits were revived, by the smell which he drew in with his first breath, and so became familiar, necessary, and *regaling*. I need not expatiate further to you, who so well know the use and prevalence of native air.

Now give me leave to take you back a little, to shew how this gentleman treats me and mine ESSAY.

Being disposed to compliment me, p. 172, he allows my having detected the fraud of pretending to gild silver, with Bath water; but totally misrepresents my narrative; ESSAY part iii. § 138, to 147. And then adds, *had this*

gentleman labored as much to prove the existence, as he has done to prove the non-existence of sulphur, he would have succeeded better.

Let men like Doctors SMITH, BARRY, and QUIN, judge of the truth and justice of this insinuation; while I challenge my powerful antagonist to point out a material experiment for the purpose, that I have omitted, or an instance of false or fallacious, or even doubtful reasoning upon any process or observation. But let our author *regale* himself and his friends, with an insinuation, which must stink in the nostrils of every sensible and attentive, polite gentleman, as well as in mine.

In the next paragraph, after raising a stench, our author is pleased to make me commit a blunder, of which, you will hardly think me capable. He says, I made an experiment on Bath water, with what I never saw, never read or heard of, 'till I had the happiness of *regaling* my senses with our author's book; will you believe it?—*with a solution of silver in an alkaline ley!* This can be no mistake; for so it stands in both his editions. And then he misquotes and mangles my whole experiment with a solution of sulphur in an alkaline ley; ESSAY, part iii. § 188, 189, and the reasoning thereupon, to introduce the following curious commentary: "His own assertion proves the
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the existence of sulphur: For, by the same parity of reason, that acids precipitate the sulphur out of the alkaline solution, the sulphur contained in the water, mingles with the sulphur in the solution, while both come to be precipitated by the acid contained in the water. Were there no sulphur in the water, this separation could not ensue, the whole would unite into one neutral concrete."

You thought, I suppose, the art of *Humbugging*, so wittily, so shrewdly exposed by the learned and ingenious Irish Printer and Journalist, GEORGE FALKENER, of Irish growth or manufacture: Yet, you see we are likely to have a *humbugging* Elaboratory erected at Bath. Now should I wish to answer this gentleman in his own strain, but that I am prevented by the respect I owe you, the public and myself.

You find our author every where confess, that the waters of Bath contain an acid. He also confesses, that sulphur in alkaline solutions must be precipitated upon the admixture of any acid; therefore, that sulphur and an acid can never subsist together in a fluid form: Yet here, he says, that Bath water, though evidently acid, is nevertheless charged with sulphur, which the predominant acid of the water could not thence precipitate, 'till the sulphur

fulphur in the waters, joined with that in the artificial solution, in order to be precipitated together. O! rare coalition!—Is not this more than curious reasoning? Is it not unanswerable? I confess it. But, what is it to the next position?—*were there no sulphur in the water, this separation could not insue, the whole would unite into one neutral concrete!*—That is, if you drop a solution of sulphur in an alkaline ley, into water charged with the acid of vitriol, no precipitation can insue; but the two fluids will become a solid mass, neutrated. Let his Apothecary correct the learned Doctor in this, if he can, it is a falsehood too palpable for contradiction.

In the next paragraph, he instructs us with a curious axiom; to wit: “In Nature’s laboratory the particles of sulphur are not dissolved but suspended in water.” Now, though this great Chemist can not conceive, that solids may be suspended, without being dissolved, in fluids; you and I are apt to apprehend, that solids are never intimately mixed, and invisibly suspended, ’till they are most completely dissolved, in the fluid. But, we must live to learn; for, as our Author has it, *Dies Diem docet.*

He next attacks, and rallies with peculiar wit, my experiments on the waters, with different

ferent solutions of mercury. On these, in phrases and with reasoning peculiar to himself, he animadverts, as follows; p. 173, 174. —“To the two last, and all his other mercurial experiments, we (that is, the Faculties of Physic of the celebrated universities of Bath and Bristol Hotwells,) beg leave to offer one general answer. Such prove nothing. Had the Bath waters been sublimated, as they ought to have been, and then been found not to change color, they might then be justly pronounced void of sulphur.”—You and the rest of my honored friends of the college were pleased to judge me pretty well versed in Chemistry. Yet must I now yield up my little share of knowledge in the art, and confess another superior; For, I honestly confess, that our Author is the only Chemist, I ever knew, who proposed to sublimate, or, in our language, sublime, waters. And I am not ashamed to declare, that the sublimation of water, or any other fluid, and the changing it's color by such sublimation, is a process, of which I can form no idea; though it appears to be so familiar to our Author.

He further adds, that “the production of the union of the absorbent earth and universal acid is merely hypothetical, or rather proves the existence of sulphur;” though he
must

must know the truth of the positions, from actual experiments of mine, if he could comprehend them. ESSAY, part i. § 223. part iii. § 214, 217. p. 360, § 39, &c.

Regardless of the demonstrations in mine ESSAY, and made often before this ingenious gentleman, of the effects of different salts, sulphur, and phlogiston, upon silver dissolved, not as our Author mentions, in an *alkaline ley*, but in it's onely proper solvent, the acid of nitre; he is pleased to ascribe the white precipitation of the silver in the Bath waters, not to the salts, not to the acid, which he confesses in the water, *but to the sulphur*, of whose existence there, he declares *the precipitation a manifest proof*; contrary to the evidence of experiments and common sense. If the solutions of lead as well as of silver, dropped into the slightest solution or impregnation of sulphur, or of phlogiston, artificial or natural, evidently give a colored precipitate, as is proved in the ESSAY on Aken water, § 302 to 304, and § 305 to 307; and that acid and other saline waters void of sulphur and phlogiston, yield colorless precipitates with these solutions, as are demonstrated by the just recited experiments, as well as by those on Bath waters, § 218 to 226, then see how these positive positions of this celebrated Chemist and Philosopher

sopher stand in the judgement of the sensible and candid! such must, with me, confess, that the Doctor's proofs of *arsenic* and of *sulphur* in Bath waters, happily for Bath and the public, stand upon the same sandy or imaginary foundation.

But our Author has not done with me here; therefore, though your patience must be tried, you will give me leave to attend the learned Analyst a little further.

In the next paragraph, on the same page, of his abundant regard to truth, he is pleased to make *me suppose*, what my words and experiments deny, *that the dissolvent acids*, I know not where, *are either pure, or mixed with martial or other earths, or the inflammable principle; and that as they happen to be colorless or colored, so they form different Luna Cornuas, with the metals, which they attract.*—I am not obliged to understand this, nor do I know, that so much nonsense ever escaped me. *Different Luna Cornuas!* There are but two precipitates of this name, one truly such, made with the acid of salt, one not complete, with the acid of vitriol. I know but these, and these may indeed be diversly colored from accidental taints in the *precipitant*, not in the *solvent*. But the Doctor, with his accustomed ingenuity, confounding the terms, proceeds to fight a

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phantom

phantom of his own creation. In this, he must be confessed to succede, as well as usual. *These*, says our Hermetic Philosopher, *are* hypothetic doctrines; *for, if solvents contained* colored or colorless earths, *or the* inflammable principle, *they could not dissolve metals, while they were in possession of such contents.* Yet the accurate Analyst finds, or some body else for him, that Bath waters, while they are charged with different salts, earths, sulphur and even arsenic, still contain iron, and are capable of dissolving more of this metal! And yet nevertheless, he hardly draws the following conclusion;—"Hence, may we venture to affirm, that the color which this ingenious artist places in his solvent, (by which he must mean *precipitant*) was the production of sulphur contained in the Bath water." This needs no commentary, it speaks for itself.

In the succeeding paragraph, he is pleased to bring me down lower, to level me, even to the very standard of absurdity. He is pleased to make me say, p. 174, what could never have entered into my head, to wit, That "Solutions of *sea salt* produce the same effects with solutions of sulphur, and from the same causes." Then, with some shew of candor, makes a quotation, which is as false and as absurd as the position charged upon me: For,
besides

besides mangling and maiming the whole paragraph, by gross omissions, he makes me mention *solution of orpiment and quicklime*, instead of the words I use, *solutions of orpiment in water, with quicklime*; for *solutions of sulphur in volatil alcalies*, he makes me say, *solutions of Silver in volatil alcalies*; and instead of, *by decoction of sulphur in water with quicklime, or a fixed alcali*, he is pleased to make me say, *a decoction of quicklime*, and so on.—Now, give me leave to ask, Can this be the effect of ignorance? Or, can it be thought to procede from any other than design? Sure we must suppose the Author, or his Amanuensis capable of transcribing, or writing; so I hope he will choose the alternative, and offer a fit apology to the public, though I ask none.

But, to state this whole matter in a true light, give me leave, though I quote my own works with reluctance, to cite the whole abused paragraph from the ESSAY on Bath waters, p. 306, § 225. After mentioning the effects of these Waters upon a solution of lead, the causing a lovely white magistery to separate and subside, the following comment upon the experiment is made.

“ The same causes, that produce the effects mentioned with the solution of silver, concur in these, wrought by sea salt or it's

acid, and the universal acid. Had there been sulphur in any form dissolved here, or any portion of the truly sulphureous, the inflammable principle, or phlogiston, mixed with the water, the apprentice of every apothecary, that knows and attends his proper business, must be able to tell, that not white, but the reverse, muddy, yellow, or dark brown, or black clouds must be the consequence of the mixture; as we find it in solutions of orpiment in water, with quicklime, to make the sympathetic ink, as it is called; in solutions of sulphur in volatil alcalies, as by means of quicklime and salt ammoniac by distillation, in making HOFFMAN's volatile tincture of sulphur; or by decoction in water, with quicklime, or a fixed alcali; or a solution of liver of sulphur in water: Any of these turn a solution of lead, in any vegetable acid, according to the subtilty and degree of saturation, yellow, redish, or of a dark brown or black; as has already been observed in the waters of Aken; which, whilst they are able to tarnish silver yellow, by the means of the phlogiston, with which they are charged, as they always are at the source; they never fail of causing muddy brown clouds and a sediment of the same color, with the solution of lead; but, when by any means deprived of this phlogiston, they

they cause onely such white clouds and precipitation, as Bath waters are found to do. Whence, we may, I think, with positive assurance, conclude, that there is no sulphur, nor phlogiston, in Bath waters; whatever men, unacquainted with the principles of chemistry and nature, ignorant of the proper experiments, or who might have thought themselves interested in concealing the truth, might have heretofore, now do, or hereafter shall, set forth to the contrary."

Give this it's proper weight and see in what light the Doctor's ingenuity, candor and judgment must appear!—But he does not quit the subject here; for, upon the quotation, as he distorts it, he makes this curious commentary; "These plead neither for or against sulphur. The phlogiston never evaporates; nor is it in the power of chemistry to separate it from water, be it ever so vapid, as may be demonstrated from common electrical experiments. The waters of *Aken* may be deprived of their volatil spirit, which has a share in the production of colors; but this has no connection with sulphur."

This surely needs neither answer nor animadversion, as it is plane, the learned Doctor, *sibi constans*, does not choose to understand, more than he does fairly to recite, my words.

His

His notions of the fixity of the phlogiston is of a piece with the rest. Had he read or understood my experiments upon solutions of sulphur and upon the waters of Aken, or had he seen or conceived Doctor HALE's experiments for sweetening putrid water, onely by ventilating it; if he were capable of conviction, he must have believed the reverse of what he asserts. Yet this he insists on more positively, p. 176, paragraph 2, where he says, *that this same phlogiston is far from volatil, of an unctuous nature, &c.* And then asks, *was the phlogiston to evaporate in boiling, how could the smelter produce metal out of his furnace?*—To this, you know, he must have met with many answers, in divers parts of the ESSAY, particularly, part iii. § 46 to 50, did he choose, or had he been capable, to conceive them. You know, that there is no affinity or attraction between phlogiston and water, and that therefore, when by any accident, that is mixed with this element, it ever tends to fly off, and wants but the Assistance of fire or air, to effect it's escape. But, with the mercurial, the phlogistic principle has a powerful attraction with metallic calces, torrifed ores, &c. so that when mixed by igneous motion, in fusing, the phlogiston attracts, is attracted and imbibed by, the ore or calx, and so all unite and form a
perfect

perfect metal. I appeal to you and every other competent judge, whether these be or be not experimentally illustrated and explained in my *ESSAY*. What capacity or what views he must have had, who overlooks or misrepresents them, let the world judge.

His next remark is upon my examinations of the residuum upon evaporating the water, and to serve his usual purposes, misquotes and distorts my words. In the *ESSAY*, p. 312, not p. 310, as he sets it down, I explain the effects of different experiments upon the residuum. To avoid repetitions of this learned gentleman's omissions, distortions, and abuses, I beg leave to recite an entire passage from mine own book.

“ As in outward appearances, so in taste, the solid contents, by evaporation thus obtained from each of these waters, agree: 1. They are in general of a pale ash color; partly of a gritty or soft sandlike consistency; partly made up of bright shining little crystals, taken together, with some sense of astringency, from the terrene parts, which predominate; without making the least acrid or lixivial impression upon the tongue. Upon repeating the evaporation of these waters at London, in flint-ware basons, very slowly, in a sand heat, I observed the residuum, more white and more of a
saline

saline appearance, than I had before seen. I thence apprehended it more saline, as it seemed all over made up of small, shining spiculae or little bright needles. But, upon closer examination, I found they were onely crystals of selenite; for they were insoluble in water; nor lost their form by boiling in it, or even by calcination. These had precisely the same taste as those obtained at Bath before. 2. Each causes an ebullition with all acids, the mineral more especially; 3. With the oil of vitriol, each produces a smart ebullition and effervescence, with white, acid fumes, agreeing with those of sea salt; 4. Thrown upon an ignited iron or coal, they fume slightly, without any visible flame or acid vapor, without scintillating, fulgurating, or crepitating. What must have been the case, had the notions of GUIDOTT and his followers, of sulphur and modern nitre in this residuum, been true, is very obvious to those, who know the composition and effects of gun powder. This mass must then have been as combustible, as salt petre and brimstone mixed, which is well known to fulgurate and fume, upon the slightest contact of any igneous body or spark. Then if to these, the new analyser's fixed alcali were added, he might have learned from the apprentice of any apothecary, that upon throwing the
 residuum

residuum upon an ignited iron, or fusing it in any vessel, it must have taken fire, and gone off with a loud explosion, such as is produced by that composition of salt petre, brimstone, and fixed alkaline salt, well known by the name of the fulminating powder."

Now see the weight of our great Doctor's commentary! "These experiments," says he, "prove nothing; for cathartic salts and many other things" (not to be distinguished or named) "will fulminate without sulphur, while others again will not fulminate with sulphur." Sure, Sir, this requires no animadversion.

Can it be necessary to trouble you or the public with exposing the great works of this great Author further? You will say, he has so effectually taken care of doing this himself, as to spare you and me further pains. I shall therefore hasten to a conclusion.

But, first, I beg leave to call to your mind what I say of the virtues of the Bath waters, *ESSAY*, P. iii. § 258 to 263. You see their efficacy depends on a very different impregnation from any that has been by any author before me ascribed to them. And it is no small satisfaction to me to find that you and all the other rational practitioners in these kingdoms now concur in my sentiments.

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You

You see, I found the principal efficacies of these waters upon their being quite void of sulphur, which the best judges have confessed to be clearly demonstrated. Our Author, in this, as in other instances, steers a quite contrary course ; he founds his practice upon his imaginary impregnation of Bath water with *real corporeal brimstone*, a mineral to which he ascribes the principal virtues of *balm of Gilead*, ATTEMPTS, p. 210. Fraught with these notions, our Author sets out with declaring, p. 171, that “ on the existence or non-existence of sulphur, depends the rationality of practice.” Therefore,” says he, “ the question of sulphur can not be indifferent.” And again, p. 196, lays it down, “ that artists ignorant of the nature and power of their instruments, deserve not the name.” And, p. 215, emphatically points out the necessity of a *Director’s knowing his tools, &c.*

If then there be *no brimstone* in Bath or Bristol waters, which this ingenious *Artist*, this high *Director*, takes for his chief *instruments* and *tools*, if there be neither *Borax* nor *Arsenic*, which he also uses for *his tools*, and if his *imaginary*, as well as *real brimstone*, bears no sort of affinity to *balm of Gilead*, does not this sublime *Artist* and *Director* appear not onely quite ignorant of the nature and power, but intirely

tirely deprived of, his boasted *instruments* and *tools*? and does he not consequently divest himself of the *name* or titule of Physician?

Hence, you see it is quite unnecessary to look further into these elaborate tracts; for, since our Author founds *the rationality of his practice*, in all the succeeding, the *therapeutic* parts of his works, upon these waters' being impregnated with sulphur, which he neither does nor can prove, more than their impregnation with *Borax* or *Arsenic*; it is but reasonable to presume, that his practice of physic must stand upon the same footing with his Chemistry and Philosophy, a *baseless fabric*.

I dare say, you wish I had closed here, where indeed I intended to have stopped. But, I could not do this in common justice: It would certainly shew, I followed the example of our Author, who treats my tracts in this manner. Give me leave then to tell you, that I dipped into this massive work, to see if I might find any thing like science, method or order, for which I might give the Author credit. And, I must confess to you, it appears to me the most strange, disorderly, immethodical, crude and indigested medley, that ever escaped the pen of a man capable of reading, speaking or thinking.

As for his boasted recitals of cases, the greatest number of them are most immetho-
dically taken from the worst writers that ever
wrote, before our Author. Such as he calls his
own, are no better than those you daily see in
quack bills, in news-papers, such as you see ex-
posed throughout my ESSAY, particularly, P.
iii. § 281, to 286, &c. They are made up of
certificates of persons concerned, or letters
from the patients themselves, setting forth,
that they were cured of a disorder, named, but
not described, *by the use of the Water, under
the care of the Doctor, all means used by other
physicians failing*. In other places, *by drink-
ing, bathing, and medicines intermixed, she was
cured*; &c. Can such cases be of any use to
any one but their Author?

But the Doctor was not contented with the
recital of such cases onely; but has swelled his
catalogue with the cases of persons cured of
certain disorders, of which, the people of Bath
positively assert, they actually died. Among
these, they mention Mrs. *Fleming*, set forth
as cured, ATTEMPT, p. 130, Doctor *Sarsfield*,
&c. and some assert, that patients by our Au-
thor mentioned as dying of injudicious treat-
ment, in other hands, are yet living. But
these, I have onely upon common report, not
having

having been long enough here to be able to ascertain the facts.

In spight to your natural cheerfulness and good humour, I fear you will censure me for having in these *Remarks*, too much attempted the *Ridiculum* of your friend HORACE. I may venture to ask the gravest reader, how this could possibly be avoided? Who has not sometimes seen the most judicious lovers of tragedy surpris'd into excessive laughter at the ridiculous representation of some of their most favorite pieces by bungling strollers? I must suppose, you have not often laughed at the reading of any physical tract. But, if you should, at any time have a mind to laugh, in this way, let me recommend to your reading the weighty volumes, upon which I have just animadverted, and refrene laughter if you can.

Did I not fear to anticipate some of your Amusement, I could now open some of these ridiculous scenes to your view. However, it may be necessary, in order to engage you to look into these amusing books, to give you a further taste of the work, as it occurred to me, not from reading, but by slightly dipping into these curious tracts.

Our Author joins with those who assert that Bath waters are impregnated with a *fixed and a volatil acid*, with *different earths*, with *iron*, and
a fixed

a fixed alcali; to which, he is pleased, from his own fund of knowledge, to add *borax* and *arsenic*, as well as *brimstone*. This, you will confess, might be ridiculous, did not the Author recommend the waters in *dropfies*, and in *asthmas*, without distinction.

In the Doctor's list of cures done by Bath water, stands an account given of an eminent gentleman, who fell ill at an inn on the road, was advised to drink the water there, grew better, but afterwards relapsed. Upon this, we are told, *that upon a second visit to Bath*, the Doctor dares to say, the patient will find a perfect cure. ATTEMPTS, p. 258.

Our Author seems peculiarly happy in the phrases he uses in giving the signs of convalescence. Take a few out of many you will find;—*and is now a bucksom widow*. An ATTEMPT, p. 223.—*galloped his little horse up and down*, p. 248. *went away well and came back again to perfect his cure*; *ibid.*—*lies flat in her bed—flies to the pump and forgets all her sorrow*. ATTEMPTS, p. 259.—Of an officer fallen in battle, he says, *by the assistance of a drummer, he gathered himself up, and hobbled after his men*. An ATTEMPT, p. 165.

The Doctor has made some very singular discoveries, which may have very singular effects in Bath. Pallid virgins must now be deterred

terred from drinking these waters; unless some choose to use them as an apology for their frailty; for our Author, among several similar instances, gives one very positively, of *a female who conceived, onely by drinking the waters.* AN ATTEMPT, p. 226.

The Doctor's descriptions of diseases have something in them peculiar to their Author. Thus he tells us with certain precision, *how often a paralytic patient dropped his whip, and how many chamber-pots he broke, by the way.*

The best account given of the case of a patient in a *diabetes*, is in a conversation between the sufferer and the chambermaid; such as, telling her, that *six chamber-pots were no more to him than six thimbles*; that, *did not modesty forbid, he could fill them before her face*; his calling for a *wash-tub*; her bringing one that held *two pails*, and his filling it every night; and yet, in five weeks, *his going away in perfect health, eating, drinking and pissing no more than other men*, p. 158.

He tells us, that *Spa, Tunbridge, and Bath waters inspire the very soul of iron*, or in another phrase, *transfuse an irony soul, into languid carcases.* ATTEMPTS p. 200. *That brimstone contains most of the Virtues of the balm of Gilead*; p. 210. *That borax dilutes and volatizes the juices*; p. 207, and ATTEMPT, p. 70.

In

In his regimen, he informs us, *that bread was used in Adam's family.* ATTEMPT, p. 278. *That blood and milk differ in little but color ;* p. 279. *That the antients recommended sea vapors, and the air of Vesuvius in Consumptions ;* ibid. *That butter-milk and bread are specifics in feverish heats, in costive constitutions ;* p. 281. *That BOERHAAVE lived on this diet for many years. That his pupils made the use of it so universal,* as to make it even at this time, in England, *the food of hogs ;* ibid. *That from it's becoming thus, from the influence of BOERHAAVE and his pupils, so very general a diet, as to be the food of swine, our Author had the mortification to be laughed at, when he first prescribed it, to animals above the rank of Swine ; and could get but three to take it, of which he takes care to tell us, two were of a nation, to whose inhabitants, the food of English Hogs was not quite strange or new, they were Irish ;* ibid ; *whose native food are potatoes and four skimmed milk ;* ibid. So the transition was easy and desirable. I wish the inference was as just, that those poor hog-fed Irish are generally free from pulmonic coughs and consumptions ; ibid. What pity it is, the Doctor has not instructed us in the salutary uses of *oaten meal and oaten bread*, and those dainty compositions of it, called *crowdy, browze, &c.* which

which constitute the principal repasts of *princes*, as well as of *peasants* and *brutes*, within the doctor's *ken*.

After such phrases, as *pulse choaked*, *symptoms mended*, and the like, he is pleased, in his usual friendship for the faculty, to give them some prudential cautions. *Physicians may be too churlish*, says he, p. 285. *longings are to be indulged*.—*A cachectic labouring under an alkaline acrimony, longing for broth, should be allowed broth*, acidulated. *And, such as labour under an acid acrimony, longing for vinegar with their food, may be indulged, upon giving them absorbent powders before dinner*. For, continues our sage and ingenuous practitioner, *by such artful condescensions*, i. e. concessions, *Physicians*, i. e. the faculty of Bath and Bristol Hotwells, *win their patients' hearts*; *ibid*. Here, you see the *hook*, quite stripped of the *bait*. They must surely be foolish *gudgeons* who take it.

In treating of drinks, our Author says, *judicious as well as common is the practice of drinking Bath water at meals*; p. 288. Though in the preceding page and sentence, he tells us, *that mineral waters are all hard and unfit for domestic purposes, until they are robbed of their acid by boiling*; and though he every where confesses and declares *Bath water the most acid, the most hard and unfit to dissolve, of all others*;

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and

and also, in one of the next following sentences, *that pure soft water is the best of all di-
luents.* See how happily these contrarieties are at once reconciled !

Thus industriously does our Author fulfil the sentiments of one of your acquaintance—
quam seriò nihil agit, quam puerilitèr seria !

But, I grow tired of this detestable stuff; so I believe must you. However absurd, it can not be laughed at, I see, but by surprise, at first reading; as the subject is of too serious a nature.—You will in other places find, a patient set forth, *sweating, scrubbing, and broil-
ing*, in the King's bath; discharges of the human body, called a *plug*, and sayed to *rebound* on the floor; *a pail of Bath water thrown up into a tender part, incapable* of holding half a pint, and that for several nights successively; and numberless such like extravagancies, which I can not, with common decency, recite.—Upon the whole, you will find both or either of these books serve you some useful purposes. You will therefore buy them, if it be onely for the good of trade.

I can not conclude these remarks, without declaring, what is almost unnecessary to you, who know me, that I found myself under the disagreeable necessity of taking up the pen again, upon this subject. My heart is void
of

of pique and prejudice to mankind. And, if it should be necessary, you may find a proof, that I always sought to expose errors and abuses, rather than men, when throughout my Essay on these Waters, I have confuted the arguments and exposed the errors of some eminent gentlemen, still alive, who wrote on these waters, solicitously avoiding the naming them.

Had this learned gentleman left it in my power, I should undoubtedly have treated him with the like tenderness. The gentleman always stood well with me. And I thought, I had reason to judge, that I was honored with some share of his confidence and esteem. His present treatment of me shews my mistake. Had he by letter informed me of the motives of his *late conversion*, I should have endeavored to reconcile our differences by experiments and fair and dispassionate arguments. The gentleman has thought it more proper to *attempt* to expose me to the public, and to that same tribunal, I am forced to apply, in the same manner, for the sake of truth and my own justification. And to shew that these, quite free from all vindictive spirit, are my motives, I shall be as ready as ever, to repeat former experiments or to make any new ones, with this antagonist, or any other gentleman of
the

the faculty, which may tend to correct errors or rectify mistakes, in which the common good of mankind, and the honor of our profession are so highly concerned.

If you wade thus far with me, you must be as much tired as I am. I have been here but a week, and was here some days before I saw those works. In the leisure hours of two or three days, I put these *remarks* together. You may judge, they must be indigested and incorrect, as they could be but *curfory*.

I have occasion to make some apology for setting your name at the head of such a crude and mean performance. But, I knew you to be a perfect judge of every part of science and literature that comes within the scope of the gentleman and the physician; a judge, as merciful, as competent and just.

I have long known you fully possessed of every social Virtue, and I therefore took the first opportunity of testifying to the public, the exquisite respect and esteem, with which I have the honor of calling you,

My Dearest Friend,

And of declaring my self,

Your most faithful,

Most affectionate,

And obliged humble Servant,

BATH, Oct. 15, 1764.

C. LUCAS.

P O S T S C R I P T.

Though to the great concern of his friends, Doctor SUTHERLAND has retired from Bath this week, to attend a patient of quality to some warmer climate, you will not wonder, if what his friends threaten should become true, that an *Answer* to these REMARKS should appear as soon as they should be published; since by the date you may see how long these sheets have been in the press, before the day of publication, which was not before the 10th day of November instant.

The E N D.

C O R R E C T I O N S.

- P. 3. l. 9. after interests, add, I presume.
 P. 6. l. 13. afer bribe, d. any.
 P. 34. l. 18. For established, r. establishes.
 P. 44. l. 1. For fantom, r. phantom.
 P. 51. l. 22. For 223, r. 263.
 P. 57. l. 17. For cauld, r. could.
 P. *ibid.* l. 19. For filling, r. filling.

FOR THE YEAR 1881

There is no question of the
fact that the year 1881 was
a very successful one for the
company. The business was
very profitable and the
profits were very large.
The company was able to
pay dividends to the
shareholders and the
profits were very large.
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pay dividends to the
shareholders and the
profits were very large.

THE YEAR 1881

The year 1881 was a very
successful one for the
company. The business was
very profitable and the
profits were very large.

FOR THE YEAR 1882

The year 1882 was a very
successful one for the
company. The business was
very profitable and the
profits were very large.
The company was able to
pay dividends to the
shareholders and the
profits were very large.

